[002] This application claims priority from German Application Serial No. 103 14 333.5 filed March 28, 2003.

[003] FIELD OF THE INVENTION

[004] The invention concerns a hydrodynamic torque converter ~~of the type defined in more detail in the preamble of claim 1~~.

[005] BACKGROUND OF THE INVENTION

[009] ~~This objective is achieved with a hydrodynamic torque converter of the generic type described, which also comprises the characterizing features of the principal claim.~~

[010] SUMMARY OF THE INVENTION

[015] BRIEF DESCRIPTION OF THE DRAWINGS

[016] ~~Further characteristics emerge from the description of the figures, which show~~ The invention will now be described, by way of example, with reference to the accompanying drawings in which:

[020] DETAILED DESCRIPTION OF THE INVENTION

[021] Fig. 1:

A converter housing 1 is in rotationally fixed connection with a drive engine (not shown). A pump impeller wheel 2 can be connected to the converter housing by a clutch 3, which is the so-termed primary clutch. Depending on the actuation pressure in a space 4 and on the converter housing pressure in a space 5, the clutch produces a transmissible torque such that the hydrodynamic torque converter can even be operated when there is slippage of the clutch 3. The converter housing 1 can be connected directly to a turbine rotor 7 by means of a converter bridging clutch 6. A stator 8 is in rotationally fixed connection with a positionally fixed component 9. Radially on the inside, the turbine rotor ~~[[2]]~~ 7 has a flange 10 which, on the one hand, serves to support the turbine rotor and,

on the other hand, has on its inner axial extension 11 cams 12 that enable the speed to be detected by a speed sensor 13. The speed sensor 13 is arranged in the positionally fixed component 9, allowing the signal leads to be positioned statically. A further speed sensor (not shown) determines the rotation speed of the turbine rotor 7, and the signals giving the speed of the turbine rotor 7 and the speed of the pump impeller wheel 2 are passed on to an electronic control unit (not shown) in which characteristic hydrodynamic torque converter values are stored, and which can determine the torque of the turbine rotor with reference to those values. Likewise, it is possible to transmit to the electronic control unit further signals from temperature and pressure sensors, so as to render the calculation of the torque more precise

[022] Fig. 2:

The converter housing 1 is connected to a drive engine (not shown). The pump impeller wheel 2 can be connected to the converter housing 1 by the clutch 3, this clutch 3 being arranged adjacent to the turbine rotor 7. The clutch 3 is actuated as a function of the pressures in the spaces 4 and 5. Radially on the inside, the pump impeller wheel 2 has a flange 10 which, at the same time, supports the pump impeller wheel 2 via a bearing 14, and on its axial extension 11 the flange 10 has cams 12 which enable a rotation speed sensor, which can be arranged axially or radially in the positionally fixed component 9, to determine the speed of the pump impeller wheel 2.

1-10. (CANCELED)

11. (NEW) A hydrodynamic torque converter, comprising a clutch (3) arranged ahead of a pump impeller wheel (2) and connected to a drive mechanism, a turbine rotor (7) forms a drive output, such that in order to determine torque of the turbine rotor (7) a rotation speed of the turbine rotor (7) is detected by a speed sensor and transmitted to an electronic control unit, a rotation speed of the pump impeller wheel (2) is transmitted by a speed sensor (13) to the electronic control unit.

12. (NEW) The hydrodynamic torque converter according to claim 11, wherein the clutch can be operated with clutch slippage.

13. (NEW) The hydrodynamic torque converter according to claim 11, wherein a performance matrix of the torque converter is stored in the electronic control unit, with reference to which, using a speed of the pump impeller wheel (2) and a speed of the turbine rotor (7), the electronic control unit determines the torque of the turbine rotor (7).

14. (NEW) The hydrodynamic torque converter according to claim 11, wherein the rotation speed sensor (13) is arranged in a positionally fixed component which is in rotationally fixed connection with a stator (8) of the torque converter.

15. (NEW) The hydrodynamic torque converter according to claim 11, wherein radially on an inside, the pump impeller wheel (2) has a flange (10) at an axial end of which means enabling the rotation speed to be detected are arranged.

16. (NEW) The hydrodynamic torque converter according to claim 11, wherein means enabling detection of the speed consist of cams arranged parallel to a rotation axis of the torque converter.

17. (NEW) The hydrodynamic torque converter according to claim 11, wherein a sensor (13) for determining the speed of the pump impeller wheel (2) is arranged inside a converter housing (1), parallel to a rotation axis of the torque converter.

18. (NEW) The hydrodynamic torque converter according to claim 11, wherein a sensor (13) for determining the speed of the pump impeller wheel (2) is arranged at right-angles to a rotation axis (21) of the torque converter.

19. (NEW) The hydrodynamic torque converter according to claim 11, wherein a sensor (13) for the speed of the pump impeller wheel (2) is arranged outside a converter housing (1).

20. (NEW) The hydrodynamic torque converter according to claim 11, wherein the clutch (3) is arranged inside one of the converter housing (1) or a transmission housing (16) positioned after the torque converter.